NNSA Administrator Linton F. Brooks
"Emerging Issues in Nuclear Non-proliferation"
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Thank you for your kind introduction. I'm delighted to join such distinguished colleagues in discussing such an important topic.

This session has been asked to look at emerging issues in nuclear non-proliferation. Before doing so we should pause a moment to consider an enduring issue: preventing new states from acquiring nuclear weapons. Obviously that remains important as the world seeks to grapple with Iran and North Korea and their apparent determination to isolate themselves from the world community by seeking weapons they don't need and that will not improve their security.

In the area of traditional non-proliferation, in addition to supporting international diplomatic efforts, the United States is setting an example by reducing its nuclear arsenal and eliminating the use of nuclear materials for weapons purposes. In May of last year, President Bush announced plans to reduce our nation's nuclear weapons stockpile by nearly half, to its smallest size since the Eisenhower Administration. That decision enables us to dispose of a significant amount of weapons-grade nuclear material.

Several years ago the United States decided to remove 157 tons of highly enriched uranium (HEU) from use in the weapons program. Last week, we announced our plans to remove an additional 200 metric tons of HEU from the U.S. nuclear weapons stockpile, enough for 8,000 nuclear warheads. This represents the largest amount of special nuclear material ever removed from the stockpile in the history of the U.S. nuclear weapons program.

The bulk of this amount – 160 metric tons – will be retained for use in propulsion systems for our nation's nuclear navy. Designating this HEU for use by Naval Reactors will have the benefit of postponing the need for construction of a new uranium high-enrichment facility for at least fifty years. Since the United States has already stopped enrichment for weapons purposes, this means it will be at least half a century before enrichment for any military purpose is required.

An additional 20 metric tons will be reserved for space missions and for research reactors that currently use HEU pending their conversion to use low enriched uranium as fuel. The final 20 metric tons of HEU will be down-blended to LEU for use in civilian nuclear power reactors or research reactors. Portions of this stockpile may also be reserved for a new reliable fuel supply initiative that I will discuss in a moment.

We are also working with the Russian Federation to eliminate 34 metric tons of weapons plutonium in each country. I am happy to report that we recently solved the impasse over liability that has delayed the plutonium disposition

program. A few weeks ago, I was pleased to attend the ground breaking at the U.S. MOX fabrication site at Savannah River. We fully anticipate that a similar MOX facility will be constructed in Russia, who, like us, is more interested in obtaining the energy value from their plutonium than stockpiling it for weapons purposes. Both our countries have committed tremendous resources to the resolution of this issue.

Cooperation with Russia in non-proliferation is nothing new for the United States. For example, we recently marked a major milestone in our Megatons to Megawatts program to blend down 500 metric tons of Highly Enriched Uranium from dismantled Russian nuclear weapons. One tenth of the electricity generated in the United States comes from uranium from former Soviet nuclear warheads.

When we add these accomplishments to U.S. leadership in the Proliferation Security Initiative, in Security Council Resolution 1540 criminalizing proliferation, in strengthening international export regimes, in the creation of a new IAEA Safeguards and Verification Committee, and in other areas, we have much to be proud of.

But much of our effort in the United States is not about traditional non-proliferation at all. Instead it focuses on two emerging issues. The first is the international effort to counter the potential for nuclear terrorism. Here too, the United States is leading the way. We are expanding our efforts to secure and transform global inventories of weapons usable materials. Our programs include the Global Threat Reduction Initiative to reduce and secure fissile and radioactive material worldwide, our efforts to complete the conversion of research reactors throughout the world to the use of low enriched uranium within the next decade, and our Material Protection, Control Accounting and Consolidation program, which has accelerated efforts to improve the security of weapons usable material in Russia and will complete its efforts by 2008.

Working with our Russian colleagues, our Elimination of Weapons Grade Plutonium Program has made tremendous accomplishments in two key cities: Seversk and Zheleznogorsk. We expect that the two plutonium-producing reactors in Seversk will be shut down by December 2008. In Zheleznogorsk, we are looking forward to a December 2010 reactor shut down date.

So our record in traditional non-proliferation and in applying nonproliferation techniques to thwart nuclear terrorism is quite good. But now the non-proliferation community is facing another emerging challenge, the challenge of revitalizing nuclear energy throughout the globe. A renaissance in nuclear energy is needed and it is coming. It is needed because global prosperity depends on significant energy growth in the coming decades. Most analysts agree that the coming decades will be marked by economic expansion around the globe. This expansion will mean the improvement of living standards for people all over the planet and the rescue of millions from poverty and despair. But this rise in prosperity will inevitably bring a rise in energy demand. The Energy Information Administration estimates perhaps as much as 50 percent more energy will be required by 2025, with more than half of that growth coming in the

world's emerging economies. By mid century, global energy requirements could triple.

How best to meet this demand in a way that protects and preserves the environment is part of our ongoing national energy debate but I believe that nuclear power is our only practical means of providing clean, affordable, safe, and reliable sources of electrical energy on the scale required. We see signs of the renewed interest in nuclear power everywhere. Around the world, over 120 new reactors are being planned or under construction. And for the first time in many years, I am able to attend a conference where you can hear U.S. nuclear utilities discuss their intentions to begin licensing new reactors.

The landmark energy policy legislation that President Bush signed in August contains a host of provisions to facilitate nuclear energy's resurgence in the United States. Among them is a measure establishing federal insurance to protect new reactor projects from foundering due to regulatory and legal delays. Other key initiatives, such as the Department of Energy's Nuclear Power 2010--a cost shared partnership between industry and government-- will demonstrate streamlined regulatory processes, leading the way for industry to field new advanced light water reactors within a decade.

We are about to enter a new nuclear energy era, with expanding global markets for nuclear power, for new plant designs, fuel cycle technologies, and expansion of services and suppliers, all helping to lead to a future of global prosperity. But this prospect is accompanied by significant proliferation risks. As the Secretary of Energy said last week, "The need for peaceful nuclear power all over the globe has never been more apparent while at the same time, the proliferation threat posed by nuclear materials and technology has never been more grave." Reconciling these two requirements is perhaps the most important issue facing the international community.

We have the opportunity to reshape our thinking so that nonproliferation is the cornerstone of the next evolution of civilian power and fuel cycles. The challenge before us to make sure we design -- at the very beginning-- technologies and political arrangements that ensure civilian nuclear power and fuel cycles are not used as a provide cover for a covert nuclear weapons program.

President Bush addressed this last year at the National Defense University, when he issued a bold challenge to the world's nuclear supplier states to create a regime that provides the benefits of nuclear power, including reliable access to commercial reactor fuel for those states willing to forego enrichment and reprocessing technologies. The President also called on members of the Nuclear Suppliers Group to refuse to sell enrichment and reprocessing equipment and technologies to any state that does not already possess full-scale, functioning enrichment and reprocessing plants.

The President proposed this initiative to help close the loophole in the Nonproliferation Treaty that had been exploited by North Korea and Iran, while ensuring the continued expansion of nuclear power around the globe. As

President Bush noted in his remarks, "Enrichment and reprocessing are not necessary for nations seeking to harness nuclear energy for peaceful purposes."

As more nations turn to nuclear power to meet their energy needs, the current commercial market should be able to satisfy the demand for fuel services. But there is a need for a back-up or "safety net" mechanism that could provide reliable access to nuclear fuel in the event of possible disruptions in market supply. Since the President made his proposal 21 months ago, we have engaged with the International Atomic Energy Agency and the major fuel suppliers to put in place a mechanism that would meet the challenge of assuring fuel services to those reactor states that swear off enrichment and reprocessing. After all, if we expect to foster real cooperation, we need to provide reliable access to nuclear fuel.

We have also taken an additional step to demonstrate our commitment to this concept by laying the foundation for a "fuel bank." Last month Secretary of Energy Bodman announced plans to reserve up to 17 metric tons of highly enriched uranium that is excess to our weapons needs to help establish a fuel reserve to support fuel supply assurances. When blended down under IAEA verification, this material will provide a significant reserve that will increase the confidence of states who forego enrichment that they will not risk losing the benefits of nuclear power.

We are strongly encouraging other international partners to establish similar reserves or contributions to an eventual fuel bank. Both Russia and Japan have expressed an interest in doing so. But it will take a strong international effort to build the required confidence in these arrangements, both on the part of fuel recipients and suppliers.

We need to work with the IAEA to develop model supply and project agreements that allow the IAEA to, if necessary, "broker" the match of willing suppliers and recipient states.

In addition to the concept of fuel banks, we are working with the international community in examining concepts for the return and storage of spent fuel—a process that could allow recipient states to avoid a number of cost, safety and safeguards burdens. In concept, I can envision fuel cycle states offering "cradle-to-grave" fuel cycle services, leasing fuel for power reactors and then taking it back for reprocessing and disposition. Presuming Iran foregoes enrichment or reprocessing, we could look to Russia's fuel supply and take-back arrangement for Iran's Bushehr reactor as a possible model.

The success of President's initiative will require the full commitment all fuel supplier and fuel recipient states. We must be ready to engage with our international partners in defining the incentives that will drive this relationship. Clearly, one area of cooperation is in disposition technologies for high-level waste and spent fuel. And we should not close the door on the possibility of establishing international spent fuel storage facilities and repositories.

This will require taking a hard look at future technologies for spent fuel recycling. The Department of Energy is pursuing an Advanced Fuel Cycle Initiative to achieve a sensible long-term approach for dealing with spent nuclear fuel. It is important to emphasize that in addressing future recycling technologies the U.S. research and development is guided by the overarching goal of no separated plutonium.

As recently stated by Secretary Bodman "*the pursuit of recycling technologies that do not produce separated plutonium must be considered not just a worthwhile, but a necessary, goal."* Technology may be available to let us meet that goal.

Since the signing of the Nuclear Non-Proliferation Treaty, the world has sought to prevent the proliferation of nuclear weapons while expanding the benefits of nuclear technology. The President's enrichment and reprocessing initiative takes us closer to that goal. So does the prospect of enrichment technology that does not result in separated plutonium. Both efforts deserve the support of the nuclear industry, both in the United States and throughout the world.

The need for peaceful nuclear power throughout the globe has never been more apparent. The nuclear industry has a very good story to tell. But in telling that story we also need to talk about controlling the proliferation of nuclear materials and technology. If we do not talk about it, those who oppose nuclear energy will do so. I think we can tell an even better story; a story that says that nonproliferation is not an abstraction. It is an integral part of our global nuclear safety culture. It can be designed in, it can be measured, controlled and enforced— it is cornerstone of civilian power and fuel cycles. If the nuclear industry embraces this perspective, it will be telling a great story. More importantly it will be simultaneously contributing to both the prosperity and the security of the entire planet. This seems to me to be a challenge worth embracing.

Thank you for your attention. My colleagues and I will be looking forward to your comments and questions.